soil survey o[f]

Oakland County Michigan

es Department of Agriculture
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tion with
Agricultural Experiment Station

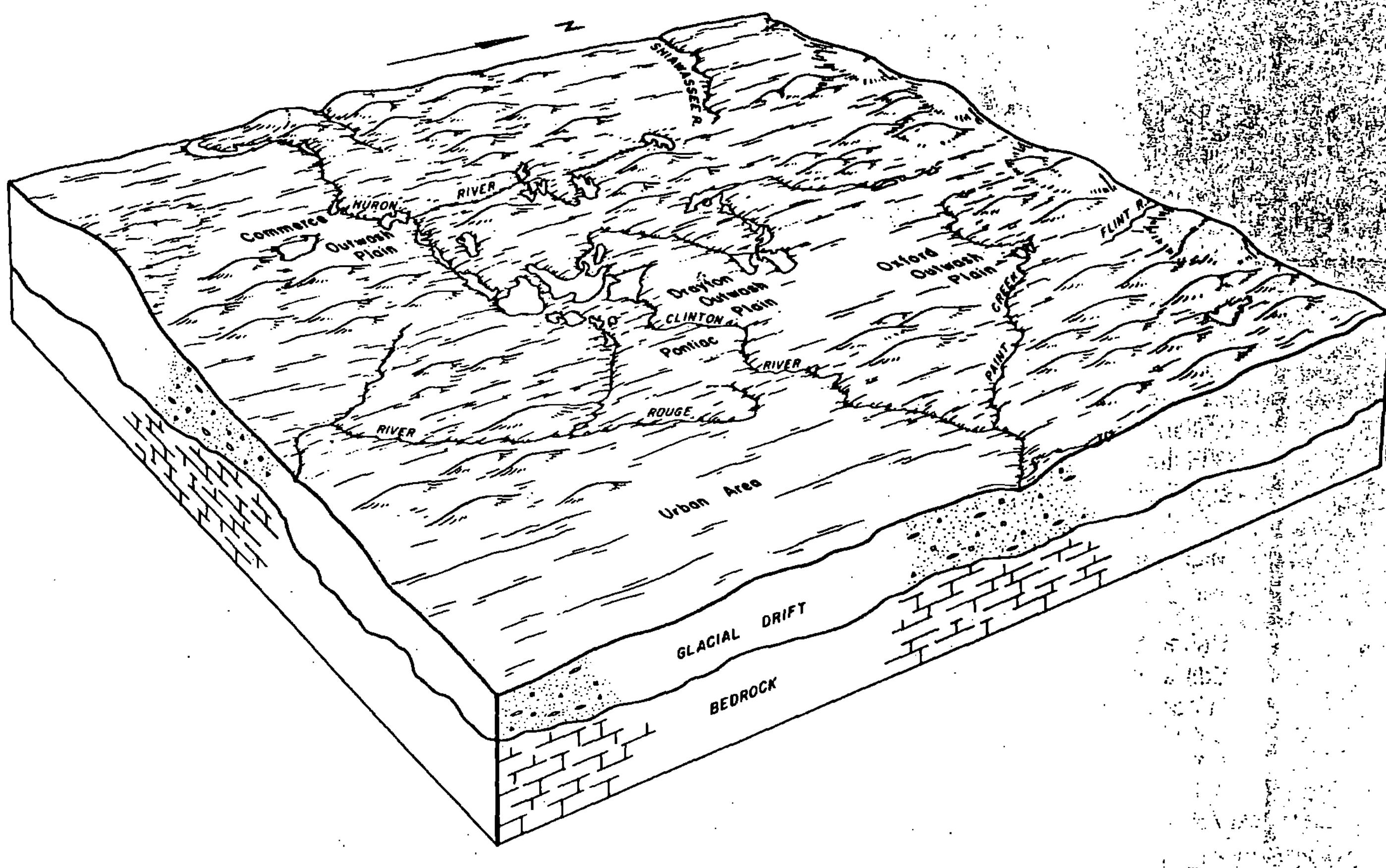


Figure 1.—Physiography and drainage in Oakland County, Michigan.

General nature of the survey area

This section gives general information concerning the county. It discusses history and development, climate, farming, industry and transportation, and lakes and streams.

History and development

The settlement of the area that is now Oakland County was delayed for 10 to 20 years by a false report that the area was an impenetrable morass. In 1816, surveyors ventured beyond the swampy belt that encircled Detroit and found the area fit for habitation. The first settlement in the survey area, now known as the township of Avon, was established in 1817. In 1819, this survey area officially became a county—the first established in the interior of the state.

Early settlers found the land nearly all forested, and the first settlements were made in small "oak openings." Upland forests consisted chiefly of oak, hickory, beech, and sugar maple. Tamarack, aspen, elm, cottonwood, ash, red maple, and eastern white-cedar occupied the lower swampy areas. As soon as the land was cleared, a system of general agriculture was developed. For a time, wheat was the chief crop; but the danger of continuous cropping on the more sloping soils was early recognized and other crops—corn, oats, rye, and potatoes—were planted.

Population has increased almost continuously since the first census period. At present it is 1,005,500. Expansion of the Detroit metropolitan area has contributed significantly to the rapid increase in the county population over the last 20 years.

Climate

Prepared by the Michigan Department of Agriculture, Michigan Weather Service, East Lansing, Michigan.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Pontiac in the period 1949 to 1978. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 25.3 degrees F, and the average daily minimum temperature is 17.9 degrees. The lowest temperature on record, which occurred at Pontiac on February 5, 1918, is -22 degrees. In summer the average temperature is 70.2 degrees, and the average daily maximum temperature is 81.7 degrees. The highest recorded temperature, which occurred at Pontiac on July 5, 1911 and July 24, 1934, is 104 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 29.6 inches. Of this, 17.2 inches, or 58 percent, usually falls in April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 14.2 inches. The heaviest 1-day rainfall during the period of record was 6.7 inches at Birmingham on June 25, 1968. Thunderstorms occur on about 34 days each year, and most occur in June and July.

Average seasonal snowfall is 34.6 inches. The greatest snow depth at any one time during the period record was 28 inches. On an average of 60 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is abou 60 percent. Humidity is higher at night. The average humidity at dawn, as recorded in 1978 at Flint and Detroit, is about 80 percent. The sun shines 67 percent of the time possible in summer and 38 percent in winte The prevailing wind is from the southwest. Average windspeed is highest, 12 miles per hour, in March.

Industry and transportation

The automobile is responsible for a great deal of the employment in Oakland County, both directly in its construction and indirectly in the businesses that suppl parts, advertising, and transportation. Important to the county economy also are financial institutions and industries that produce plastic, metal, chemicals, pharmaceuticals, building materials, and electricity. The national headquarters and regional offices of many larg corporations are in southern Oakland County.

Oakland County is served by four interstate, two feder and five state highways as well as a large number county and municipal roads.

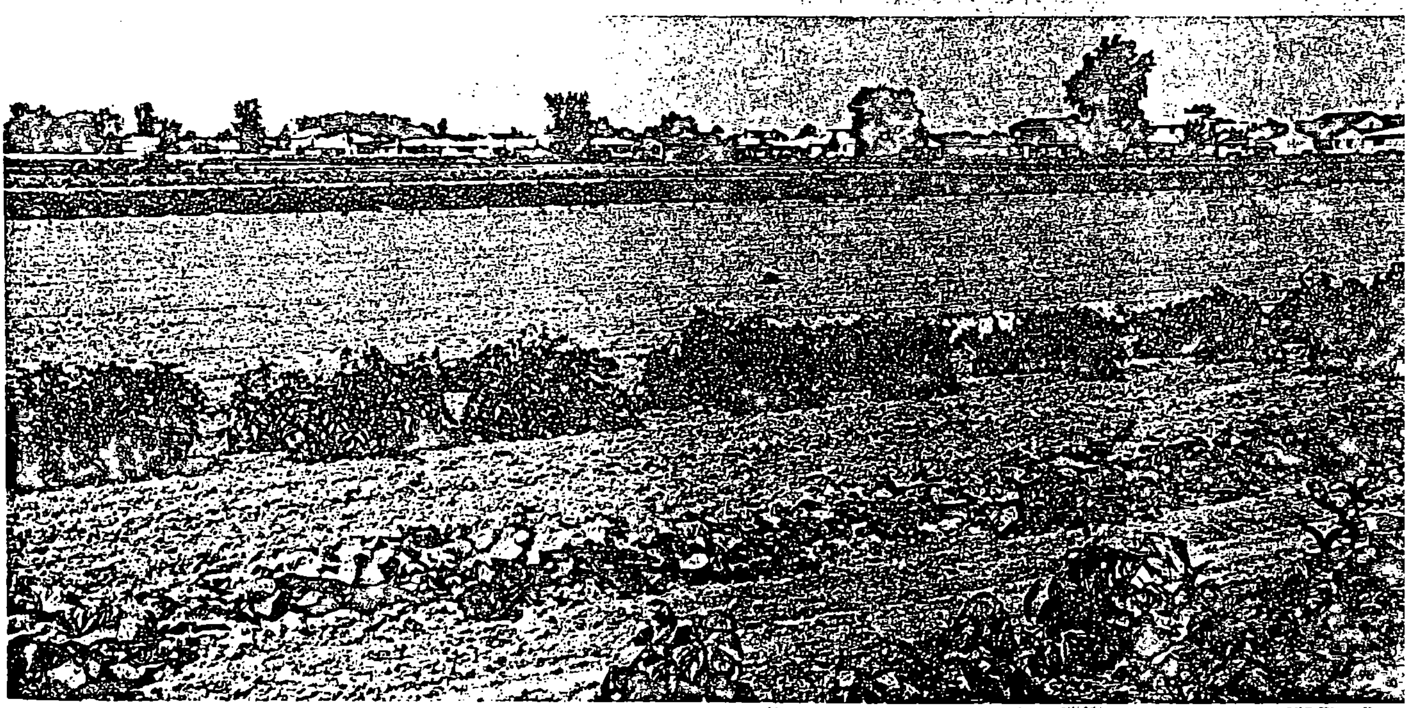


Figure 2.—Garden vegetables on Kibbie fine sandy loam, 0 to 4 percent slopes.

broad, flat areas or low knolls. Slopes are slightly convex and are less than 50 feet long. Areas are irregular in shape and are 2 to 100 acres in size.

Typically, the surface layer is very dark grayish brown loamy sand about 9 inches thick. The subsoil is multicolored, loose sand about 36 inches thick. The substratum to a depth of about 60 inches is light brownish gray calcareous sand. In some places the subsoil and substratum are very fine sand or are stratified loamy fine sand to light sandy loam. In some places there is gravelly sand below a depth of about 36 inches. In some places there is loamy or clayey material below 50 inches.

Included in mapping are small areas of poorly drained Granby soils and very poorly drained Gilford, Houghton, and Thomas soils that are in depressions and drainageways. Also included are small areas of moderately well drained Oakville soils that are on slightly higher knolls and ridges. The included soils make up 4 to 10 percent of the map unit.

Permeability is rapid in this Tedrow soil, and the available water capacity is low. Runoff is slow. The seasonal high water table is at a depth of 1 to 2 feet from January through April.

In most areas this soil is used as woodland or pasture or is idle land. In a few areas it is used as cropland. This soil is well suited to use as pasture. It is fairly suited to use as cropland and woodland and to recreation uses.

This soil is poorly suited to building site development because of wetness, and it is poorly suited to use as septic tank absorption fields because of wetness and poor filtering capacity. If this soil is used as a site for buildings, the use of surface or subsurface drains to lower the water table and the use of well compacted fill to raise the site help to overcome the wetness limitation. If it is used as septic tank absorption fields, special construction, such as filling or mounding the absorption field with suitable soil material, may be needed to raise the site above the water table and to increase the filtering capacity.

If this soil is used as cropland, the major management concerns are wetness, water erosion and soil blowing, droughtiness, and organic matter content. Subsurface drainage helps to reduce the wetness limitation. Cover crops, such as rye, protect fields from erosion and soil blowing. The use of conservation tillage, which does not invert the soil and leaves all or part of the crop residue on the surface, helps to conserve moisture. The use of crop rotations that include grasses and legumes and the use of crop residue management can help to maintain organic matter content.

If this soil is used as woodland, the major management concern is seedling mortality. Some seedling loss can be expected due to droughtiness during dry summer months. Exposing soil just prior to the production of the seed crop can help desirable tree seedlings become established quickly and get a head start on competing vegetation.

This soil is in capability subclass IIIs and Michigan soil management group 5b.

54A—Matherton sandy loam, 0 to 3 percent slopes. This nearly level, somewhat poorly drained soil is on low knolls. Slopes are slightly convex and are less than 150 feet long. Areas are irregular in shape and are 2 to 180 acres in size.

Typically, the surface layer is very dark grayish brown sandy loam about 8 inches thick. The subsurface layer is grayish brown loam about 5 inches thick. The subsoil is mottled, friable sandy clay loam about 21 inches thick. In the upper part it is grayish brown, and in the lower part it is brown. The substratum to a depth of about 60 inches is light brownish gray, calcareous gravelly sand. In some places the depth to gravelly sand is more than 40 inches.

Included in mapping are small areas of Wasepi and Capac soils that are on landscape positions similar to those of the Matherton soil. The Wasepi soils are more droughty and the Capac soils less droughty than the Matherton soil. Also included are small areas of the poorly drained Sebewa soils and the very poorly drained Gilford soils that are in depressions and drainageways. The included soils make up 5 to 10 percent of this map unit.

Permeability is moderate in the subsoil of this Matherton soil and rapid or very rapid in the substratum. The available water capacity is moderate. Runoff is slow. The seasonal high water table is at a depth of 1 to 2 feet from November through May.

In most areas this soil is used as pasture or woodland or is idle land. This soil is well suited to use as cropland, pasture, and woodland. It is fairly suited to most recreation uses.

This soil is poorly suited to building site development because of wetness, and it is poorly suited to use as septic tank absorption fields because of wetness and poor filtering capacity. If this soil is used as a site for buildings, the use of surface or subsurface drains to lower the water table and the use of well compacted fill to raise the site help to overcome the wetness limitation. If it is used as septic tank absorption fields, special construction, such as filling or mounding the absorption field with suitable soil material, may be needed to raise the site above the water table and to increase the filtering capacity.

If this soil is used as cropland, the main management concerns are removing excess water and maintaining good soil tilth. Surface and subsurface drains help to overcome the wetness limitation. Conservation tillage, which does not invert the soil and leaves all or part of the crop residue on the surface, helps to maintain good tilth.

This soil is in capability subclass IIw and Michigan soil management group 3/5b.

56A—Urban land-Blount-Lenawee complex, 0 to 3 percent slopes. This complex consists of Urban land;

nearly level, somewhat poorly drained Blount soils on low knolls; and nearly level, poorly drained Lenawee soils on smooth lowland flats and in shallow depressions and drainageways. Low areas are subject to frequent ponding. Areas of this complex are 5 to 500 or more acres and contain 40 to 70 percent Urban land, 20 to 25 percent Blount soils, and 15 to 20 percent Lenawee soils. The areas of these soils and Urban land are so intermingled or so small that mapping them separately is not practical at the scale used.

The Urban land is covered by streets, sidewalks, driveways, parking lots, houses, and other structures that so obscure or alter the soils that identification of the soils is not feasible.

Typically, the surface layer of the Blount soils is very dark grayish brown loam about 8 inches thick. The subsoil is mottled and is about 28 inches thick. In the upper part it is brown, firm silty clay loam; and in the lower part it is grayish brown, very firm clay. The substratum to a depth of about 60 inches is grayish brown, mottled, calcareous silty clay loam. In some places the soil has been radically altered. Some of the low areas have been filled or levelled during construction; and other areas have been cut, built up, or smoothed. In some places the subsoil has more clay.

Typically, the surface layer of the Lenawee soils is very dark brown silty clay loam about 9 inches thick. The subsoil is mottled and is about 36 inches thick. In the upper part it is dark gray, firm silty clay loam; in the middle part it is gray, very firm silty clay; and in the lower part it is gray, very firm silty clay loam. The substratum to a depth of about 60 inches is light yellowish brown, mottled, calcareous silty clay loam. In some places the soil has been radically altered. Some of the low areas have been filled or levelled during construction; and other small areas have been cut, built up, or smoothed.

Included in mapping are small areas of the moderately well drained Glynwood soils on slightly higher, convex areas. Also included are small areas of Aquents that are on landscape positions similar to those of the Lenawee soils. The included soils make up 2 to 10 percent of the complex.

In winter and spring the high water table is at a depth of 1 to 2 feet in the Blount soils and is near or at the surface in the Lenawee soils. Permeability is slow or moderately slow in the Blount soils and moderately slow in the Lenawee soils. The available water capacity is high. Surface runoff is slow to ponded.

Most areas of this complex are used for residential, commercial, and light industrial development. Some areas are used for schools. The Blount and Lenawee soils, which make up the open parts of the complex, are used mainly for lawns, gardens, windbreaks, ornamental or wildlife planting, and open space and to a lesser extent for parks and woodland. The Blount soils are fairly suited to use as sites for lawns, vegetable and flower gardens, and trees and shrubs. The Lenawee soils, unless drained, are poorly suited to these uses. These soils are poorly suited to recreation uses.

If grasses, flowers, vegetables, trees, and shrubs are grown, the main management concerns are removing excess water and maintaining the organic matter content and tilth of the soil. Surface and subsurface drainage can be used successfully on this soil; however, onsite evaluation is needed to determine the best method of drainage for a particular area. The content of organic matter in the soil can be maintained by adding compost material or by plowing under grasses or legumes, such as clover, each year. Soil tilth can be maintained by not working the soil while it is wet and by adding suitable materials to increase the aeration of the soil and make it easier for the roots to penetrate the clay. Working the soil when it is wet causes the soil to become cloddy and compact. Perennial plants that are selected for planting should have a fairly high tolerance for wetness. In areas where the subsoil has been exposed during construction or landforming, suitable topsoil should be added.

The Blount and Lenawee soils are poorly suited to building site development because of wetness. They should not be used as sites for buildings with basements. If these soils are used as sites for buildings without basements, the use of surface and subsurface drains to lower the water table and the use of well compacted fill to raise the site help to overcome the wetness limitation. These soils generally are not suited to use as septic tank absorption fields because of wetness and slow or moderately slow permeability. Sanitary facilities should be connected to public sewers and sewage treatment facilities.

This complex is not assigned to interpretive groupings.

59—Urban land. This miscellaneous area consists of nearly level and sloping land that is covered by commercial buildings, condominiums and apartment buildings, parking lots, streets, sidewalks, driveways, railroad yards, industrial complexes, and other structures. These structures cover about 85 percent or more of the mapped area.

Included with the Urban land in mapping are some small areas of sandy to clayey soils.

Urban land is not assigned to interpretive groupings.

60B—Urban land-Marlette complex, 0 to 8 percent slopes. This complex consists of Urban land and nearly level to gently rolling, moderately well drained Marlette soils on knolls, ridges, and side slopes. Areas of this complex are 10 to 500 or more acres and contain 40 to 75 percent Urban land and 20 to 30 percent Marlette soils. The areas of Urban land and Marlette soils are so intermingled or so small that mapping them separately is not practical at the scale used.

The Urban land is covered by streets, sidewalks, driveways, parking lots, houses, and other structures that so obscure or alter the soils that identification of the soils is not feasible.

Typically, the Marlette soils have a surface layer of dark grayish brown sandy loam about 7 inches thick. The of the lower areas have been filled. Other small areas have been built up or smoothed. In some places the total thickness of bands is less than 6 inches or there is gravelly sand below about 50 inches.

Included in mapping are small areas of well drained Riddles soils on landscape positions similar to those of the Spinks soils. These soils have more clay in the subsoil and are less droughty than the Spinks soils. Also included are small areas of somewhat poorly drained Wasepi, Thetford, and Selfridge soils that are on low-lying landscape positions or in drainageways. The included soils make up 5 to 10 percent of the complex.

Permeability is moderately rapid in the Spinks soils. The available water capacity is low. Runoff is slow.

Most areas of this complex are used for residential, commercial, and light industrial development. Some areas are used for schools. The Spinks soils, which make up the open parts of the complex, are used for lawns, gardens, and environmental plantings and to a lesser extent for parks and woodland. These soils generally are poorly suited to grasses, flowers, vegetables, and many trees and shrubs.

The Spinks soils are well suited to building site development and to use as septic tank absorption fields.

This complex is not assigned to interpretive groupings.

62C—Urban land-Spinks complex, 8 to 15 percent slopes. This complex consists of Urban land and gently rolling and rolling, well drained Spinks soils on knolls, ridges, and side slopes. Areas are irregular in shape and range from 5 to 200 acres or more. Urban land makes up about 40 to 75 percent of the mapped areas, and Spinks soils make up 30 to 40 percent. The areas of Urban land and the Spinks soils are so intermingled that mapping them separately is not practical at the scale used.

Urban land is covered by streets, sidewalks, driveways, parking lots, houses, and other structures that so obscure or alter the soils that identification of the soils is not feasible.

Typically, the surface layer of the Spinks soils is brown loamy sand about 8 inches thick. The subsurface layer is pale brown sand about 9 inches thick. The next layer to a depth of about 60 inches consists of brown, loose sand and thin bands of reddish brown, very friable loamy sand. In some places the soil has been radically altered. Some of the higher areas have been levelled, and some of the lower areas have been filled. Other small areas have been built up or smoothed. In some places the total thickness of bands is less than 6 inches or there is gravelly sand below 50 inches.

Included in mapping are small areas of well drained Riddles soils on landscape positions similar to those of the Spinks soils. These soils are less droughty than the Spinks soils. Also included are small areas of somewhat poorly drained Wasepi, Thetford, and Selfridge soils that are on low-lying landscape positions or in drainageways. The included soils make up 5 to 10 percent of the complex.

Permeability is moderately rapid in the Spinks soils. The available water capacity is low. Runoff is medium.

Most areas of this complex are used for residential, commercial, and light industrial development. Some areas are used for schools. The Spinks soils, which make up the open parts of the complex, are used for lawns, gardens, and environmental plantings and to a lesser extent for parks and woodland.

The Spinks soils are suited to building site development and to use as septic tank absorption fields, but slope is a limitation. For buildings, the slope limitation can be overcome by land shaping and installing retaining walls. For septic tank absorption fields, this limitation can be overcome by land shaping and installing the absorption field across the slope.

This complex is not assigned to interpretive groupings.

63A—Urban land-Thetford complex, 0 to 3 percent slopes. This complex consists of Urban land and nearly level, somewhat poorly drained Thetford soils on smooth, low-lying plains. Areas of this complex are 5 to 140 acres and are 35 to 75 percent Urban land and 20 to 30 percent Thetford soils. The areas of Urban land and Thetford soils are so intermingled or so small that it is not practical to separate them at the scale of mapping used.

Urban land is covered by streets, sidewalks, driveways, parking lots, houses, and other structures that so obscure or alter the soils that identification of the soils is not feasible.

Typically, the surface layer of the Thetford soils is very dark grayish brown loamy fine sand about 8 inches thick. The subsurface layer is light yellowish brown loamy fine sand about 16 inches thick. The subsoil consists of pale brown, mottled, loose fine sand and thin, discontinuous bands of dark brown, very friable loamy sand, about 25 inches thick. The substratum to a depth of about 60 inches is pale brown, mottled, calcareous fine sand and sand. In some places mainly in the City of Southfield and Royal Oak areas, the subsoil texture is loamy very fine sand and the thickness of bands in the subsoil is less than 6 inches. In some areas the substratum is loamy or clayey below a depth of about 50 inches. In places the soil has been radically altered. Some of the low areas have been filled or levelled; other areas have been cut, built up, or smoothed.

Included in mapping are small areas of very poorly drained Houghton and Adrian soils and poorly drained Granby soils that are in low-lying areas. The Houghton and Adrian soils are less stable than the Thetford soils. The included soils make up 2 to 8 percent of the complex.

Thetford soils have a high water table at a depth of 1 to 2 feet in winter and spring. Permeability is moderately rapid. The available water capacity is low, and runoff is slow.

Most areas are used for residential, commercial, and light industrial development. Some areas are used for schools. The Thetford soils, which make up the open parts of the complex, are used mainly for lawns, gardens, windbreaks, and ornamental or wildlife plantings, parks, and woodland. They are fairly suited to lawns, vegetable and flower gardens, trees, and shrubs.

If grasses, flowers, vegetables, trees, and shrubs are grown, the main management concerns are removing excess water, overcoming droughtiness, and maintaining organic matter content. Several methods of artificial drainage can be used on this soil. The best method for a particular area will need to be selected by onsite evaluation. Perennial plants that are selected for planting should have a fairly high tolerance for wetness. Topsoil is needed in areas where the subsoil has been exposed during construction or landforming.

The Thetford soils are poorly suited to building site development and to use as septic tank absorption fields because of wetness. If these soils are used as building sites, the use of surface and subsurface drains to lower the water table and the use of well compacted fill to raise the site can help to overcome the wetness limitation. Sanitary facilities should be connected to public sewers and sewage treatment facilities.

This complex is not assigned to interpretive groupings.

67B—Ormas loamy sand, 0 to 6 percent slopes. This nearly level and undulating, well drained soil is on broad, nearly level plains and on low knolls and ridges. Slopes are smooth and convex and are commonly less than 100 feet long. Areas are irregular in shape and are 5 to 100 acres in size.

Typically, the surface layer is dark grayish brown loamy sand about 9 inches thick. The subsurface layer is pale brown loamy sand and light yellowish brown sand about 23 inches thick. The subsoil is dark brown, firm gravelly sandy clay loam about 11 inches thick. The substratum to a depth of about 60 inches is pale brown, calcareous gravelly sand. In some places the subsoil and substratum consist of alternate layers of sandy clay loam and sandy loam.

Included in mapping are small areas of somewhat poorly drained Matherton, Wasepi, and Selfridge soils that are on flat plains, in depressions, and on foot slopes. Also included are poorly drained Sebewa soils and very poorly drained Brookston and Houghton soils that are in depressions. The included soils make up 2 to 10 percent of the map unit.

Permeability is moderately rapid in the subsoil of this Ormas soil and very rapid in the substratum. The available water capacity is low, and surface runoff is slow.

In most areas this soil is used as pasture or woodland or is idle land. This soil is well suited to use as pasture and woodland. It is fairly well suited to cropland and recreation uses. This soil is well suited to building site development and to use as septic tank absorption fields.

If this soil is used as cropland, the major management concerns are controlling soil blowing, overcoming droughtiness, and maintaining organic matter content. Cover crops, such as rye, protect fields from soil blowing. The use of grasses and legumes in the crop rotation and the use of conservation tillage, which does not invert the soil and leaves all or part of the crop residue on the surface, can help to maintain the content of organic matter and overcome droughtiness.

If this soil is used as woodland, the major management concern is seedling mortality. Special site preparation, such as furrowing, can help to overcome this problem in some areas.

This soil is in capability subclass IIIs and Michigan soil management group 4a.

67C—Ormas loamy sand, 6 to 12 percent slopes. This moderately sloping and gently rolling, well drained soil is on knolls, ridgetops, and side slopes. Slopes are smooth and convex and are generally less than 100 feet long. Areas of this soil are irregular in shape and are 2 to 100 acres in size.

Typically, the surface layer is dark grayish brown loamy sand about 8 inches thick. The subsurface layer is pale brown loamy sand and light yellowish brown sand about 23 inches thick. The subsoil is dark brown, firm gravelly sandy clay loam about 10 inches thick. The substratum to a depth of 60 inches is pale brown, calcareous gravelly sand. In some places the subsoil and substratum consist of alternate layers of sandy loam and sandy clay loam.

Included in mapping are small areas of somewhat poorly drained Matherton, Wasepi, and Selfridge soils that are on foot slopes and in depressions. Also included are poorly drained Sebewa soils and very poorly drained Thomas soils that are in depressions. The included soils make up 5 to 10 percent of the map unit.

Permeability is moderately rapid in the subsoil of this Ormas soil and very rapid in the substratum. The available water capacity is low. Surface runoff is medium.

In most areas this soil is used as pasture or woodland or is idle land. In a few areas it is used as cropland. This soil is well suited to use as pasture and woodland. It is fairly well suited to cropland and recreation uses.

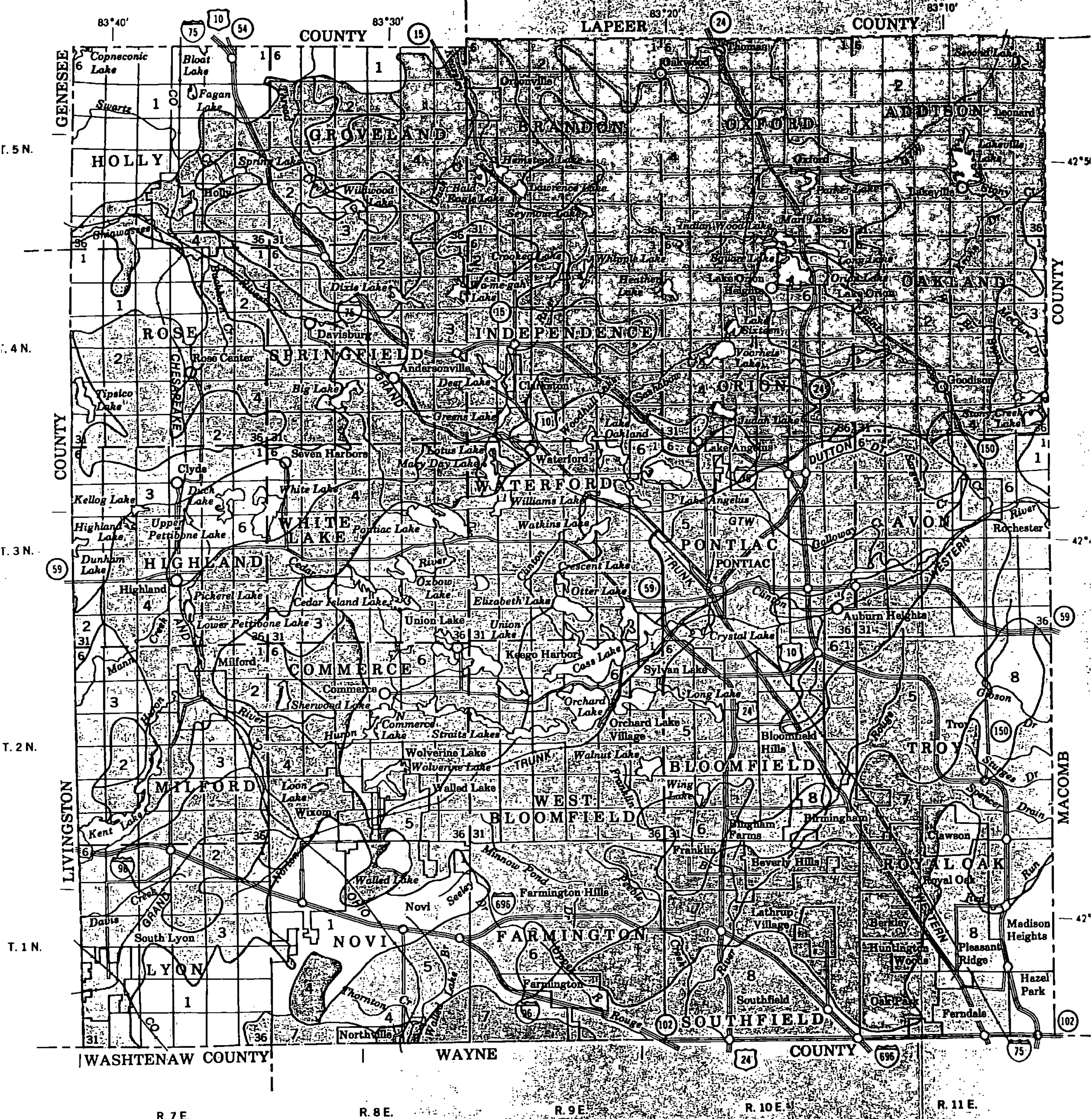
This soil is suited to building site development and to use as septic tank absorption fields, but slope is a limitation. For buildings, land shaping and installing retaining walls help to overcome the slope limitation. For septic tank absorption fields, land shaping and installing the absorption field across the slope help to overcome this limitation.

If this soil is used as cropland, the major management concerns are controlling water erosion and soil blowing, overcoming droughtiness, and maintaining organic matter content. Cover crops, such as rye, protect fields from water erosion and soil blowing. Contour tillage helps to slow runoff. The use of grasses and legumes in the crop rotation and the use of conservation tillage, which does not invert the soil and leaves all or part of the crop residue on the surface, can help to maintain the content of organic matter and overcome droughtiness.

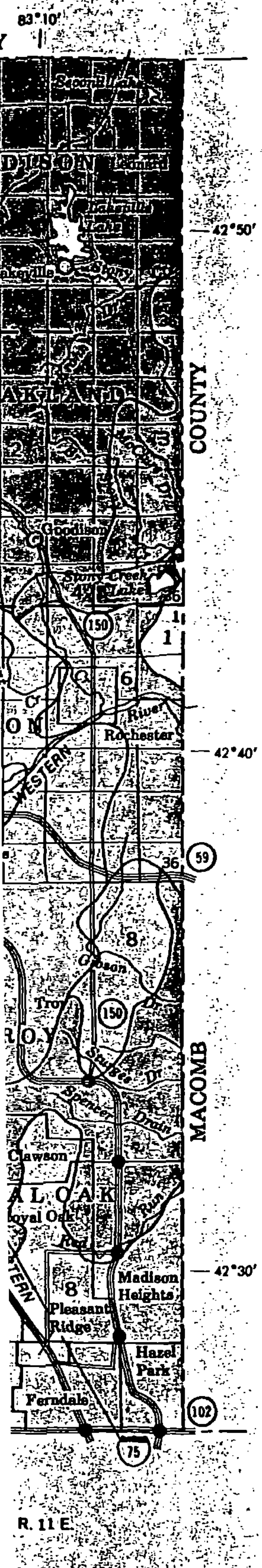
TABLE 17.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months		Uncoated steel	Concrete
					Ft					
56A*:										
Lenawee	B/D	None	---	---	+1-1.0	Apparent	Nov-May	High	High	Low.
59*. Urban land										
60B*: Urban land.										
Marlette	B	None	---	---	2.5-6.0	Apparent	Dec-Apr	Moderate	Low	Moderate.
60C*, 60D*: Urban land.										
Marlette	B	None	---	---	>6.0	---	---	Moderate	Low	Moderate.
61A*: Urban land.										
Capac	B	None	---	---	1.0-2.0	Apparent	Nov-May	High	High	Low.
62B*, 62C*: Urban land.										
Spinks	A	None	---	---	>6.0	---	---	Low	Low	Low.
63A*: Urban land.										
Thetford	A	None	---	---	1.0-2.0	Apparent	Feb-May	Moderate	Low	Moderate.
67B, 67C Ormas	B	None	---	---	>6.0	---	---	Moderate	Low	Moderate.
68*:										
Cohoctah	B/D	Frequent	Long	Jan-Dec	0-1.0	Apparent	Sep-May	High	High	Low.
Fox	B	None	---	---	>6.0	---	---	Moderate	Low	Moderate.
69 Thomas	D	None	---	---	+1-1.0	Apparent	Nov-Jun	High	High	Low.

* See description of the map unit for composition and behavior characteristics of the map unit.



83°40'
83°30'
83°20'
83°10'
LAPEER
COUNTY
GENESEE
COUNTY
LIVINGSTON
WASHTENAW COUNTY
WAYNE
COUNTY
MACOMB
COUNTY
T. 5 N.
T. 4 N.
T. 3 N.
T. 2 N.
T. 1 N.
R. 7 E.
R. 8 E.
R. 9 E.
R. 10 E.
R. 11 E.
HOLLY
GROVELAND
BRANDON
OXFORD
ADDISON
ROSE
SPRINGFIELD
INDEPENDENCE
ORION
OAKLAND
HIGHLAND
WHITE LAKE
WATERFORD
PONTIAC
AVON
COMMERCE
WEST BLOOMFIELD
BLOOMFIELD
TROY
MILFORD
NOVI
FARMINGTON
SOUTHFIELD
ROYAL OAK
LYON
Copneconic Lake
Bloat Lake
Fagan Lake
Holly
Davisburg
Rose Center
Andersonville
Clarkston
Waterford
Seven Harbors
Clyde
Highland
Milford
Commerce
Union Lake
Keego Harbor
Sylvan Lake
Orchard Lake Village
Wolverine Lake
Walled Lake
Wixom
Novi
Farmington Hills
Farmington
Northville
South Lyon
Ortonville
Oakwood
Thomas
Oxford
Leonard
Lakeville
Lake Orion
Lake Orion Heights
Goodison
Rochester
Auburn Heights
Pontiac
Bloomfield Hills
Birmingham
Bingham Farms
Franklin
Beverly Hills
Lathrup Village
Southfield
Clawson
Royal Oak
Berkley
Huntington Woods
Oak Park
Ferndale
Pleasant Ridge
Madison Heights
Hazel Park
Troy
Spring Lake
Dixie Lake
Big Lake
Deer Lake
Greens Lake
Lotus Lake
White Lake
Duck Lake
Kellog Lake
Highland Lake
Upper Pettibone Lake
Dunham Lake
Pickerel Lake
Lower Pettibone Lake
Cedar Island Lakes
Oxbow Lake
Elizabeth Lake
Otter Lake
Crescent Lake
Watkins Lake
Williams Lake
Pontiac Lake
Lake Angelus
Lake Oakland
Judah Lake
Voorheis Lake
Crystal Lake
Cass Lake
Orchard Lake
Long Lake
Sherwood Lake
Straits Lakes
Walnut Lake
Wing Lake
Loon Lake
Kent Lake
Tipsico Lake
Lake Sixteen
Stony Creek Lake
Seymour Lake
Lawrence Lake
Heather Lake
Square Lake
Crooked Lake
Mud Lake
Indian Wood Lake
Parker Lake
GRAND TRUNK WESTERN
PONTIAC
DUTTON
Clinton
River
Huron
Rouge
Minnow Pond



U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MICHIGAN AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP

OAKLAND COUNTY, MICHIGAN

Scale 1: 253,440

1 0 1 2 3 4 Miles

1 0 1 2 3 4 5 6 Kilometers

SOIL LEGEND*

1	Marlette-Capac-Houghton: Nearly level to hilly, well drained to very poorly drained loamy and mucky soils; on till plains and moraines and in bogs
2	Riddles-Marlette-Houghton: Nearly level to steep, well drained, moderately well drained, and very poorly drained loamy and mucky soils; on moraines and till plains and in bogs
3	Fox-Oshtemo-Houghton: Nearly level to hilly, well drained and very poorly drained loamy, sandy, and mucky soils; on outwash plains, moraines, and beach ridges and in bogs
4	Oshtemo-Spinks-Houghton: Nearly level to steep, well drained and very poorly drained sandy and mucky soils; on outwash plains, beach ridges, and moraines and in bogs
5	Urban land-Marlette-Capac: Urban land and nearly level to hilly, well drained to somewhat poorly drained loamy soils; on till plains and moraines
6	Urban land-Spinks-Oshtemo: Urban land and nearly level to rolling, well drained sandy soils; on outwash plains, beach ridges, and moraines
7	Urban land-Blount-Lenawee: Urban land and nearly level and gently undulating, somewhat poorly drained and poorly drained loamy and silty soils; on lake plains and moraines
8	Urban land-Thetford: Urban land and nearly level, somewhat poorly drained sandy soils; on lake plains and outwash plains

*Texture terms refer to the surface layer of the major soils in the map units.

Compiled 1981

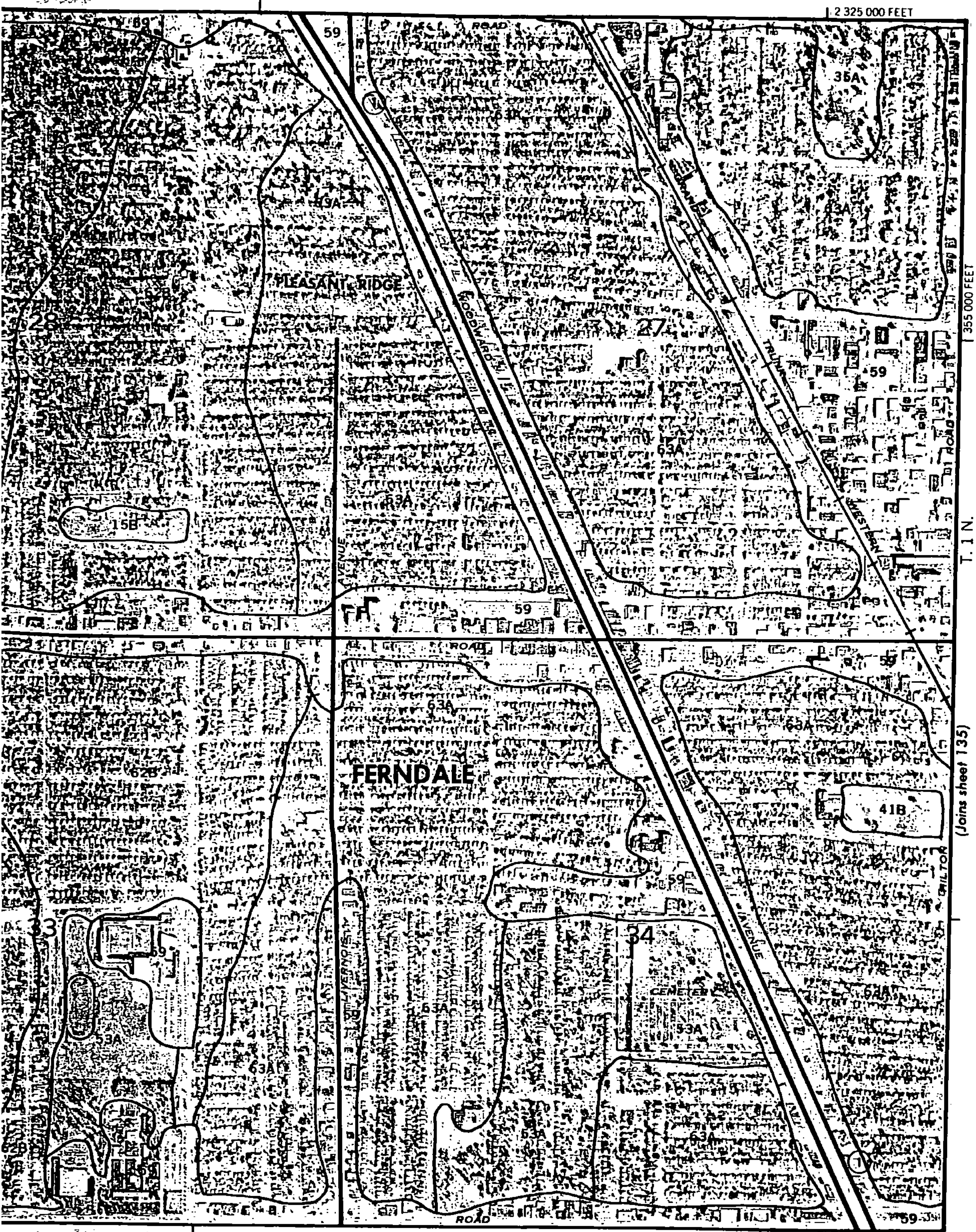
SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

SOIL LEGEND

Map symbols consist of numbers or a combination of numbers and letters. The initial numbers represent the kind of soil. A capital letter following these numbers indicates the class of slope. Symbols without a slope letter are for nearly level soils or miscellaneous areas.

SYMBOL	NAME	SYMBOL	NAME
10B	Marlette sandy loam, 1 to 6 percent slopes	40B	Udorthents, loamy, undulating
10C	Marlette sandy loam, 6 to 12 percent slopes	40C	Udorthents, loamy, rolling
10D	Marlette loam, 12 to 18 percent slopes	41B	Aquents, sandy and loamy, undulating
10E	Marlette loam, 18 to 35 percent slopes	42	Pits
11B	Capac sandy loam, 0 to 4 percent slopes	43	Sloan-Marlette association
12	Brookston and Colwood loams	44B	Riddles sandy loam, 1 to 6 percent slopes
13B	Oshtemo-Boyer loamy sands, 0 to 6 percent slopes	44C	Riddles sandy loam, 6 to 12 percent slopes
13C	Oshtemo-Boyer loamy sands, 6 to 12 percent slopes	44D	Riddles sandy loam, 12 to 18 percent slopes
13E	Oshtemo-Boyer loamy sands, 12 to 40 percent slopes	45B	Arkport loamy fine sand, 2 to 6 percent slopes
14B	Oakville fine sand, 0 to 6 percent slopes	45C	Arkport loamy fine sand, 6 to 12 percent slopes
14C	Oakville fine sand, 6 to 18 percent slopes	45D	Arkport loamy fine sand, 12 to 25 percent slopes
15B	Spinks loamy sand, 0 to 6 percent slopes	46A	Dixboro loamy fine sand, 0 to 3 percent slopes
15C	Spinks loamy sand, 6 to 12 percent slopes	47B	Fox-Riddles sandy loams, 1 to 6 percent slopes
15E	Spinks loamy sand, 12 to 35 percent slopes	47C	Fox-Riddles sandy loams, 6 to 12 percent slopes
17A	Wasepi sandy loam, 0 to 3 percent slopes	48	Gilford sandy loam
18B	Fox sandy loam, 1 to 6 percent slopes	49	Cohoctah fine sandy loam
18C	Fox sandy loam, 6 to 12 percent slopes	50B	Udipsamments, undulating
18D	Fox sandy loam, 12 to 25 percent slopes	50D	Udipsamments, rolling to steep
19	Sebewa loam	51B	Leoni gravelly sandy loam, 1 to 6 percent slopes
20B	Glynwood loam, 2 to 6 percent slopes	51C	Leoni gravelly sandy loam, 6 to 12 percent slopes
20C	Glynwood loam, 6 to 12 percent slopes	52A	Selfridge loamy sand, 0 to 3 percent slopes
23B	Sisson fine sandy loam, 1 to 6 percent slopes	53A	Tedrow loamy sand, 0 to 3 percent slopes
23C	Sisson fine sandy loam, 6 to 12 percent slopes	54A	Matherton sandy loam, 0 to 3 percent slopes
25B	Owosso sandy loam, 1 to 6 percent slopes	56A	Urban land-Blount-Lenawee complex, 0 to 3 percent slopes
25C	Owosso sandy loam, 6 to 12 percent slopes	59	Urban land
26	Sloan silt loam	60B	Urban land-Marlette complex, 0 to 8 percent slopes
27	Houghton and Adrian mucks	60C	Urban land-Marlette complex, 8 to 15 percent slopes
31B	Metea loamy sand, 0 to 6 percent slopes	60D	Urban land-Marlette complex, 15 to 25 percent slopes
31C	Metea loamy sand, 6 to 12 percent slopes	61A	Urban land-Capac complex, 0 to 3 percent slopes
32B	Blount loam, 0 to 4 percent slopes	62B	Urban land-Spinks complex, 0 to 8 percent slopes
33	Lenawee silty clay loam	62C	Urban land-Spinks complex, 8 to 15 percent slopes
34B	Kibbie fine sandy loam, 0 to 4 percent slopes	63A	Urban land-Thetford complex, 0 to 3 percent slopes
35A	Thetford loamy fine sand, 0 to 3 percent slopes	67B	Ormas loamy sand, 0 to 6 percent slopes
36A	Metamora sandy loam, 0 to 3 percent slopes	67C	Ormas loamy sand, 6 to 12 percent slopes
38	Napoleon muck	68	Cohoctah-Fox association
39	Granby loamy sand	69	Thomas muck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(Joins sheet 135)
PLEASANT RIDGE
FERNDALE
ROAD
AVENUE
CEMETERY
28
27
33
34
59
35A
63A
15B
62B
41B
53A